

What is claimed is:

1. A DC motor comprising:

a plurality of windings;

at least one magnetostatic relay positioned in the motor to
5 activate in the presence of a magnetic field, where each relay is
connected electrically to at least one corresponding winding and
to power; and

a magnetic rotor having at least one pole positioned to
induce a magnetic field in each magnetostatic relay when passing
by the relay.

2. The motor of claim 1, wherein the windings are arranged
in pairs of primary and secondary windings and each relay
connects to a corresponding one of the pairs of windings.

3. The motor of claim 2, wherein the secondary windings all
connect to a common node and each of the primary windings
connects to the corresponding relay.

4. The motor of claim 1, wherein the motor is a four-pole,
three-phase motor.

Sub
G1
cancel

5. The motor of claim 4, wherein the motor includes three relays separated from each other by approximately 120°.

Sub
B2

6. A DC motor comprising:
a plurality of windings;
at least one magnetostatic relay connected electrically to
at least one of the windings and to power, where each relay has:
5 at least one substrate formed from a nonconductive
or semiconductive material;
a springing beam formed on the substrate; and
two electrically conductive elements, one formed
on the springing beam, that together define at least
two switching states, including an open state in which
the conductive elements are physically separated from
each other, and a closed state in which the conductive
elements physically contact each other;
15 where the springing beam includes a magnetic
material which, in the presence of a magnetic field,
creates an actuation force that causes the electrically
conductive elements to apply power to or remove power
from at least one of the windings by switching from one
of the switching states to another of the switching
20 states; and

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a magnetic rotor having at least one pole positioned to induce a magnetic field in each magnetostatic relay when passing by the relay.

7. A method for use in commutating a DC motor, the method comprising:

rotating a magnetic rotor to induce a magnetic field in at least one magnetostatic relay in the motor; and

in response to the magnetic field, activating each relay to deliver power to at least one corresponding winding connected to the relay.

8. The method of claim 7, wherein activating each relay includes delivering power from each relay first through a corresponding primary winding and then through a corresponding secondary winding to a common node.

9. The method of claim 7, wherein activating each relay includes activating each relay four times during one rotation of the magnetic rotor.